Math II: 2nd Semester Final Midpoint Test

Unit 3: Comparing Functions – Modeling and Transformations

Find the equation of the line that goes through the given points.

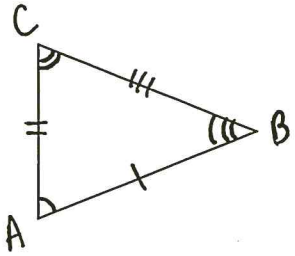
1. A linear equation through the points (-48, -9) and (8, -2).
   (4 points)

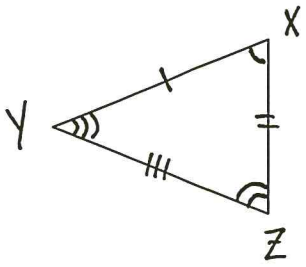
2. A quadratic equation through the points (-2, 57), (2, 17), and (7, 372).
   (6 points)

3. An exponential equation through the points (-5, 192) and (-1, 12).
   (4 points)

Unit 4: Similarities

4. Given the following triangles, provide **CONGRUENCE** statements for the angles and sides that will show that Δ ABC ≅ Δ XYZ (6 points):

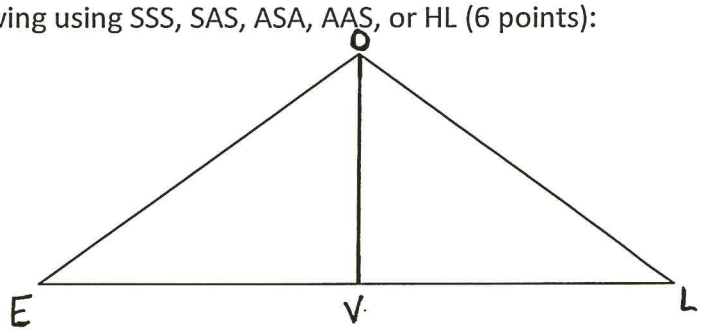




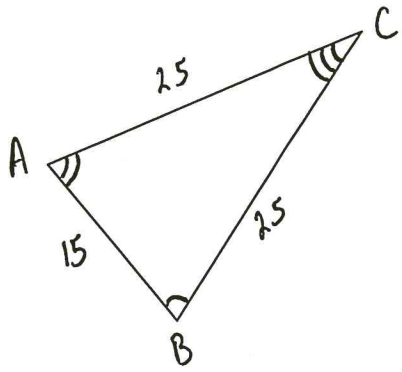
5. Write a two column proof for the following using SSS, SAS, ASA, AAS, or HL (6 points):

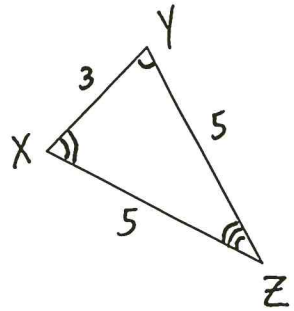
Given: OV ⊥ LE
OV bisects ∠O
Δ LOE is an isosceles

Prove: Δ LOV ≅ Δ EOV



6. Given the following triangles, provide **SIMILARITY** statements for the angles and sides that will show that Δ ABC ~ Δ XYZ (7 points):

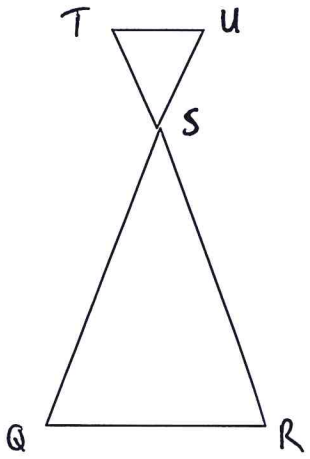




7. Write a two column proof for the following using AA, SSS, or SAS (6 points):

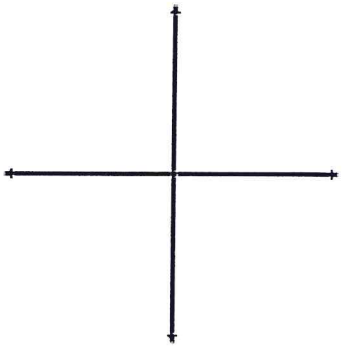
Given: QR || TU
QR = 2
QS = 4
RS = 4
ST = 12
SU = 12
TU = 6

Prove: Δ SQR ~ Δ SUT



Unit 5: Right Triangles and Trigonometry

8. Given an angle of -750°:

A. Draw the angle in standard form (1 point). 	
B. Identify one positive coterminal angle (1 point):	C. Identify one negative coterminal angle (1 point):
D. Find the reference angle of the given angle (1 point).	

Evaluate each of the following using the Hand Trick (2 points each):

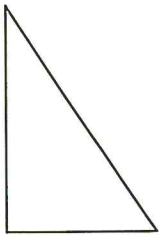
9. $\sin(135^{\circ})$

10. $\cos(-390^{\circ})$

Solve each of the following triangles (3 points each):

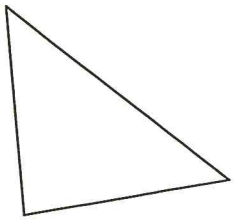
11. Given the RIGHT triangle with right $\angle C$

$\angle B = 60^{\circ}$ & $c = 11$



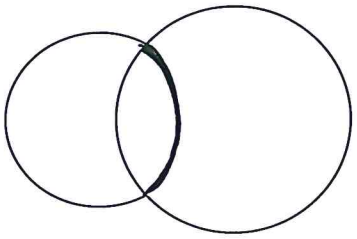
12. Given the Non-Right Triangle:

$\angle A = 97^{\circ}$, $a = 22$, & $c = 19$

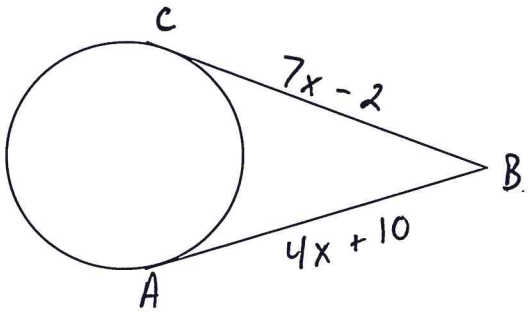


Unit 7: Circles:

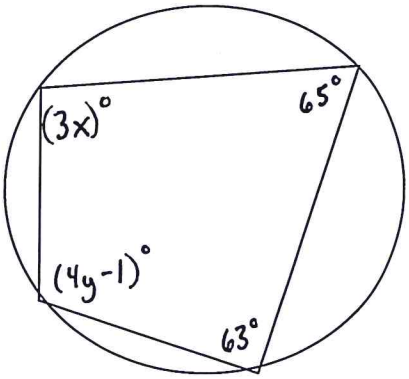
13. State the number of common tangents between the given circles, and then draw them (2 points):



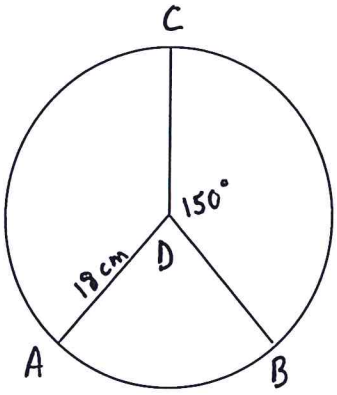
14. Find the value of $\overline{AB}$ (2 points).



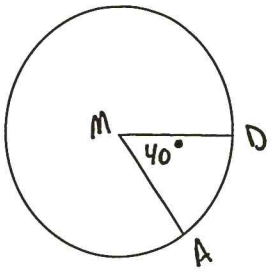
15. Find the value of all variables (2 points):



16. In the following $\angle ADC \cong \angle BDC$. Find the length of $\widehat{AB}$ (1 point).



17. Find the area of circle M, given the area of the sector is 105 in^2 (1 point)

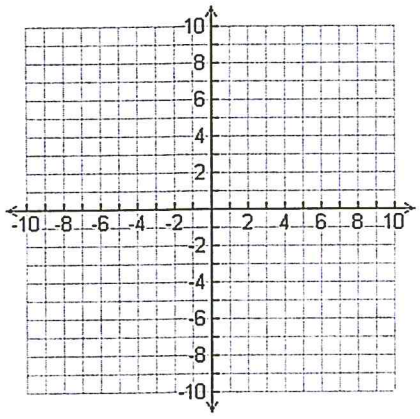


18. Given the equation: $(x-3)^2+(y+4)^2=36$

A. Identify the center of the circle (1 point):

B. Identify the radius of the circle (1 point):

C. Graph the circle (1 point):



19. Given the equation:

$$x^2+y^2+2x+6y-15=0$$

A. Rewrite the equation into Standard Form (1 point):

A. Identify the center of the circle (1 point):

B. Identify the radius of the circle (1 point):

D. Graph the circle (1 point)